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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,558	01/10/2002	Wolfram Burst	52097	2747

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KEIL & WEINKAUF
1350 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

EXAMINER

BHAT, NINA NMN

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 03/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/041,558

Applicant(s)

BURST ET AL.

Examiner

N. Bhat

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☒ Claim(s) 11-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The information disclosure statement filed 10-28-2004 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.
2. The disclosure is objected to because of the following informalities: Applicant is required to include the heading "Brief Description of the Drawings". On Page 7, line 35, Applicant is requested to insert the heading "Brief Description of the Drawings". Appropriate correction is required.
3. Claims 11-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 11, applicant refers to claim 1 and uses "first component and second component" which lacks positive antecedence with A and B. Also auxiliary used lacks positive antecedence with auxiliary "H" which should be corrected so that A, B, H, AH, BH have positive antecedence when read in light of claims 11-15. Appropriate correction is required. Further applicant has used improper Markush language "selected from among" in describing the first component and second component. Applicant is requested to use proper Markush language selected from the group consisting of A, B, C and D or applicant can recite wherein the first component A is selected from A, B, C or D. Appropriate correction is required.

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4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al. USP 6,458,249

Miller et al. teaches the invention substantially as claimed. Miller et al. teaches a process for purifying perfluorinated products such as azeotropic mixtures of nitrogen trifluoride (NF₃) and tetrafluoromethane (PFC-14); hydrogen chloride and PFC-14; NF₃ and hydrogen chloride and contacting the azeotropic mixture with an entraining agent with mixture to form a second mixture and distilling the second mixture and recovering at least one of the PFC-14 and NF₃ that is substantially free of at least one of the other fluorinated components of the first mixture.[Note Column 2, lines 40-55] Miller et al. further teaches that the entraining agents act in a manner so as to increase or decrease the volatility of the PFC-14 or NF₃. The entraining agent when mixed with the azeotropic mixture comprising nitrogen trifluoride and tetrafluoromethane is fed to a

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distillation column at a point equal to or higher than that at which the PFC-14 or NF_3 containing mixture is fed. The entraining agent acts in a non-ideal manner at with at least one of the PFC-14 or NF_3 such that the relative volatility between the desired PFC-14 or NF_3 product is increased.[Note Column 4, lines 44-67]. The entraining agent as described in Miller et al. is functionally equivalent to applicant's auxiliary "H" agent.

However, Miller et al. teaches that the entraining agent or the auxiliary agent will either act in a manner to increase or decrease the volatility of the PFC-14 or NF_3 and the auxiliary "H" agent or the entraining agent does not specifically form a binary azeotrope which has a boiling point lower than that of H as claimed.

As stated above, it is maintained that the entraining agent of Miller et al. is functionally equivalent to applicant's auxiliary "H" agent, and although Miller et al. teaches that the entraining agent will either increase or decrease the volatility of the binary azeotrope. The azeotropic mixture taught in Miller et al. is PFC-14 which is equivalent to applicant's "A", and NF_3 which is equivalent to applicant's "B" component of the binary mixture. To provide an entraining agent or auxiliary agent which forms a binary azeotrope AH or BH which has a boiling point lower than that of H would have been obvious, the distilling step for isolating an A, H containing fraction which is depleted in B would have been obvious from the teachings of Miller et al. since the basic concept of adding an entraining agent or auxiliary agent to a binary azeotropic mixture containing mixture to form a ternary azeotrope with components A and B has been taught in Miller et al. and to provide an entraining agent or auxiliary agent which with each of the two components A and B forms a binary azeotrope AH or BH, wherein the entraining agents

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act in a manner so as to increase or decrease the volatility of A or B has been specifically taught in Miller et al. and to provide an entraining agent or auxiliary agent would have been an obvious selection or design choice to one having ordinary skill in the art of azeotropic distillation thus rendering the invention as a whole obvious.

7. Claims 11-15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims as the prior art fails to teach and/or suggest a process for separating an azeotropic mixture of a first component (A) is selected from chlorinated hydrocarbons and monocyclic C₆-C₁₀ aromatics and a second component (B) is selected from C₃-C₈ alkanols and the auxiliary agent H used is water comprising distilling the mixture to be separated in the presence of an auxiliary H which is water which with each of the two components A and B forms a binary azeotrope AH and BH which has a boiling point lower than that of the auxiliary agent H and isolating the A,H containing fraction which is depleted in B compared to the mixture to be separated and a B, H containing fraction which is depleted in A compared to the mixture to be separated.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gerberich et al. teach a process of separating closely boiling azeotropes. Aquilla et al. teach a distillative separation of liquid mixtures of substances. McEntee et al. teach a process for the recovery of alkylchloride using distillation. Feldman et al. teach an extractive distillation of alkanol ester mixtures by extractive distillation using an aromatic hydrocarbon as the extractive solvent.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Bhat whose telephone number is 571-272-1397. The examiner can normally be reached on Monday-Friday, 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



N. Bhat
Primary Examiner
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